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**Amendments to the Claims**

Please amend the claims as follows. This listing of the claims will replace all prior versions, and listings of claims, in the application:

1.(Currently amended) A wavelength conversion device comprising ~~an integrated stacked arrangement:~~

a photodetector for generating a photocurrent in response to the detection of radiation at a first wavelength;

an avalanche multiplier for amplifying said photocurrent; and

a light emitting element driven by said amplified photocurrent to produce radiation at a second wavelength different from said first wavelength and corresponding to detected radiation at said first wavelength;

wherein said photodetector, said avalanche multiplier, and said light emitting element are arranged in a stacked integrated structure selected from the group consisting of: a structure wherein said photodetector, said avalanche multiplier, and said light emitting diode are located on different wafers which are fusion bonded together, and a structure wherein said functional layers of said photodetector, said avalanche multiplier, and said light emitting diode are epitaxial layers grown on a common substrate.

2.(Original) A wavelength conversion device as claimed in claim 1, wherein said second wavelength is shorter than said first wavelength.

3.(Original) A wavelength conversion device as claimed in claim 2, wherein said photodetector is integrated onto a transparent substrate through which said radiation at a first wavelength passes to impinge on said photodetector.

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4.(Original) A wavelength conversion device as claimed in claim 3, wherein said integrated stacked arrangement comprises III-V semiconductors.

5.(Original) A wavelength conversion device as claimed in claim 4, wherein said light emitting element is a light emitting diode.

6.(Original) A wavelength conversion device as claimed in claim 5, wherein said photodetector comprises InxGa1-xAs/InP layers.

7.(Currently amended) A wavelength conversion device as claimed in claim 6, wherein said avalanche multiplier and said LED comprise InP and InPAs layers, respectively.

8.(Original) A wavelength conversion device as claimed in claim 7, wherein said layers are epitaxial layers.

9.(Currently amended) A wavelength conversion device as claimed in claim 6, wherein said avalanche multiplier and said LED-light emitting diode comprise GaAs and GaAs/AlGaAs layers respectively.

10.(Canceled)

11.(Original) A wavelength conversion device as claimed in claim 3, wherein said first wavelength lies in the infrared range and said second wavelength lies in the near infrared or visible range.

12.(Original) A wavelength conversion device as claimed in claim 11, wherein said first wavelength lies in the range of 1.1 to 1.65 microns.

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13.(Original) A wavelength conversion device as claimed in claim 1 wherein said photodetector and light emitting element are provided with optical windows to permit pixelless up conversion of an image.

14.(Original) A wavelength conversion device as claimed in claim 1, comprising an array of said stacked arrangements arranged in parallel to permit pixellized up conversion of an image.

15.(Original) A wavelength conversion device as claimed in claim 14, wherein said stacked arrangements are located on a common transparent substrate.

16.(Currently amended) A thermal imaging device comprising:

a) at least one integrated stack including:

(i) a photodetector for generating a photocurrent in response to the detection of far infrared radiation;

(ii) an avalanche multiplier for amplifying said photocurrent; and

(iii) a light emitting diode driven by said amplified photocurrent to produce near infrared or visible radiation corresponding to said detected far infrared; and

(iv) wherein said photodetector, said avalanche multiplier, and said light emitting element are arranged in a stacked integrated structure selected from the group consisting of: a structure wherein said photodetector, said avalanche multiplier, and said light emitting diode are grown on different wafers which are fusion bonded together, and a structure wherein said functional layers of said photodetector, said avalanche multiplier, and said light emitting diode are epitaxial layers grown on a common substrate; and

b) a camera for generating an image from said near infrared or visible radiation.

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17.(Original) A thermal imaging device as claimed in claim 16, comprising an array of said integrated stacks on a common transparent substrate to provide a pixellated output.

18.(Original) A thermal imaging device as claimed in claim 17, wherein said camera is a charge coupled device having individual elements opposing said respective integrated stacks.

19.(Original) A thermal imaging device as claimed in claim 16, comprising window openings to permit the formation of a pixelless image, and said camera is a charge-coupled device.

20.(Original) A thermal imaging device as claimed in claim 16, wherein said integrated stack comprises a III-V material system.

21.(Original) A thermal imaging device as claimed in claim 17, further comprising a micro-lens fabricated on the surface of said light emitting element.

22.(Withdrawn) A method of making a wavelength conversion device, comprising growing in sequence as epitaxial layers:

a photodetector for generating a photocurrent in response to the detection of radiation at a first wavelength;

an avalanche multiplier for amplifying said photocurrent; and

a light emitting diode driven by said amplified photocurrent to produce radiation at a second wavelength different from said first wavelength and corresponding to detected radiation at said first wavelength.

23.(Withdrawn) A method as claimed in claim 22, wherein said second wavelength is shorter than said first wavelength.

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24.(Withdrawn) A method as claimed in claim 23, wherein said photodetector is grown on a transparent substrate through which said radiation at a first wavelength passes to impinge on said photodetector.

25.(Withdrawn) A method as claimed in claim 24, wherein said epitaxial layers comprise III-V semiconductors.

26.(Withdrawn) A method as claimed in claim 25, wherein said photodetector comprises  $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{InP}$  layers.

27.(Withdrawn) A method as claimed in claim 26, wherein said avalanche multiplier and said LED comprise  $\text{InP}$  and  $\text{InPAs}$  layers.

28.(Withdrawn) A method of making a wavelength conversion device, comprising:

epitaxially growing on a first substrate a photodetector for generating a photocurrent in response to the detection of radiation at a first wavelength;

epitaxially growing on a second substrate an avalanche multiplier for amplifying said photocurrent;

epitaxially growing on a third substrate a light emitting diode driven by said amplified photocurrent to produce radiation at a second wavelength different from said first wavelength and corresponding to detected radiation at said first wavelength; and

combining said photodetector, said avalanche multiplier and said light emitting diode into an integrated stack by wafer fusion.

29.(Withdrawn) A method as claimed in claim 28, wherein said second wavelength is shorter than said first wavelength.

30.(Withdrawn) A method as claimed in claim 29, wherein:

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firstly said photodetector and said avalanche multiplier are fused together, whereafter said second substrate is removed; and

secondly the fused combination of said photodetector and said avalanche multiplier is fused to said light emitting diode, whereafter said third substrate is removed.

31.(Withdrawn) A method as claimed in claim 28, wherein said second and third substrates are removed by mechanical or chemical polishing.

32.(Withdrawn) A method as claimed in claim 29, wherein said photodetector is grown on a transparent substrate through which said radiation at a first wavelength passes to impinge on said photodetector.

33.(Withdrawn) A method as claimed in claim 32, wherein said epitaxial layers comprise III-V semiconductors.

34.(Withdrawn) A method as claimed in claim 33, wherein said photodetector comprises  $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{InP}$  layers.

35.(Withdrawn) A method as claimed in claim 34, wherein  $x = 0.53$ .

36.(Withdrawn) A method as claimed in claim 28, wherein said avalanche multiplier and said light emitting diode comprise GaAs and GaAs/AlGaAs layers respectively.